Reactors Save Energy, Costs for Hydrogen Production

Glenn Research Center

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NASA Technology

- To save energy and reduce pollution, Glenn Research Center examined fuel cells for producing electricity onboard commercial aircraft
- Glenn looked at fuel reforming technology, which uses fuel, air, steam, and a catalyst (reactor), to produce hydrogen for the fuel cell to make electricity

Partnership

- Glenn partnered with Catacel under the Glenn Alliance Technology Exchange program and then through a Space Act Agreement
- Catacel developed a novel catalytic combustor module called a stackable structural reactor (SSR)
- The partners tested and modified an SSR for industrial hydrogen production, which demonstrated cost savings up to 35 percent

Benefits

- Catacel installed the first commercial version in a hydrogen production plant in Turkey
- A food oils processing plant in Mexico saw an immediate 13.5 percent natural gas cost reduction after installing the technology
- On average, the technology results in energy savings of about 20 percent